

Please amend the paragraph at page 73, lines 9-10, to read as follows:

a2 Silane 2: 5-10% v/v of an isopropyl alcohol solution containing 50% trimethoxysilylpropyl modified polyethyleneimine.

A version of the above amended paragraph marked to indicate the specific amendments may be found in the attached Appendix, in accordance with 37 CFR 1.121(b)(1).

In the Claims:

Please cancel claims 28-31, 59, 61 and non-elected claims 64-83, without prejudice.

Please amend claims 1-4, 9, 14, 19, 25, 27, 32, 38, 42 and 53 to read as follows:

Sub B 1. (Amended) A process for treating a metal substrate to improve adhesion of polymeric materials thereto, comprising the steps of

intergranular etching a surface of the metal substrate; and

applying an immersion plated metal to the intergranular etched surface by immersing the surface in an immersion plating composition comprising one or more plating metals selected from tin, silver, bismuth, copper, nickel, lead, zinc, indium, palladium, platinum, gold, cadmium, ruthenium, cobalt, gallium and germanium,

wherein the step of intergranular etching is carried out with an intergranular etching composition selected from the group consisting of:

(1) an intergranular etching composition comprising

an oxidizer;

a mineral acid, an alkyl sulfonic acid or fluoroboric acid, or a mixture thereof;

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a corrosion inhibitor; and

a source of halide ions; or

(2) an intergranular etching composition comprising

0.1 to 20% by weight hydrogen peroxide,

an inorganic acid,

an organic corrosion inhibitor and

a surfactant; or

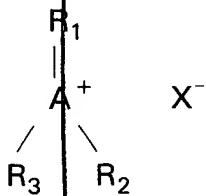
(3) an intergranular etching composition comprising

(a) hydrogen peroxide;

(b) at least one acid;

(c) at least one nitrogen-containing, five-membered heterocyclic compound which does not contain any sulphur, selenium or tellurium atom in the heterocycle; and

(d) at least one adhesive compound selected from sulfinic acids, seleninic acids, tellurinic acids, heterocyclic compounds containing at least one sulfur, selenium and/or tellurium atom in the heterocycle, and sulfonium, selenonium and telluronium salts having the general formula (A),



in which

A stands for S, Se or Te;

R₁, R₂ and R₃ stand for alkyl, substituted alkyl, alkenyl, phenyl, substituted phenyl, benzyl, cycloalkyl, substituted cycloalkyl, R₁, R₂ and R₃ being the same or different; and

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X⁻ stands for an anion of an inorganic or organic acid or hydroxide, provided that the acid selected to constitute component (b) is not identical to the sulfinic, seleninic or tellurinic acids selected as component (d); or

(4) an intergranular etching composition comprising

0.5 to 5% w/v hydrogen peroxide; and

0.01 to 5% w/v of an aromatic sulfonic acid or a salt thereof, or

(5) an intergranular etching composition comprising:

(a) an acid,

(b) a copper complexing agent selected from the group consisting of urea compounds, thiourea compounds, amidines, imidazole thiones, 2,4-dithiobiruet, 2,4,6-trithiotriuret, alkoxy ethers of isothiourea, thiocyanuric acid, and thioammelide,

(c) a metal selected from the group consisting of tin, bismuth, lead and cerium, which is present in one of its higher positive oxidation states and which metal forms a composition soluble salt, and

(d) oxygen,

wherein the concentration of the higher positive oxidation state metal in the composition is greater than about 4 grams per liter of the composition.

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2. (Amended) The process of claim 1, wherein the intergranular etched surface comprises intergranular crevices having an aspect ratio of about 1 or greater.

Sub B2

3. (Amended) The process of claim 1, wherein the intergranular etched surface comprises intergranular crevices having an aspect ratio of about 2 or greater.

4. (Amended) The process of claim 1, wherein the intergranular etched surface comprises intergranular crevices having a depth of about 1 micron or greater.

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9. (Amended) A process for treating a metal substrate to improve adhesion of polymeric materials thereto, comprising the steps of

intergranular etching a surface of the metal substrate; and

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applying an immersion plated metal to the intergranular etched surface by immersing the surface in an immersion plating composition comprising one or more plating metals selected from tin, silver, bismuth, copper, nickel, lead, zinc, indium, palladium, platinum, gold, cadmium, ruthenium, cobalt, gallium and germanium

wherein, when the intergranular etched surface is divided into a grid of squares 10 microns on each side, at least 50% of the squares include at least one intergranular crevice having an aspect ratio of at least 5.

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14 14. (Amended) The process of claim *13*, wherein the aqueous solution of a silane comprises about 0.5 wt% to about 3 wt% of one or more of diethoxymethylsilylpropyltriethoxysilane, tris (triethoxysilylpropyl) amine, a trimethoxy silyl propyl modified polyethyleneimine, and a mixture of γ -ureidopropyltriethoxysilane and bis(triethoxysilyl) ethane.

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15. (Amended) The process of claim *1*, wherein the step of applying an immersion plated metal is carried out on a continuous basis.

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16. (Amended) The process of claim *10* wherein the polymeric nonconductive material is one or more of PTFE, an epoxy resin, a polyimide, a polycyanate ester, a butadiene terephthalate resin.

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17. (Amended) The process of claim *13* wherein the silane comprises a trimethoxysilylpropyl modified polyethyleneimine.

a9 32. (Amended) The process of claim 1, wherein the step of intergranular etching is carried out with the ~~intergranular etching composition (1).~~

a10 38. (Amended) The process of claim 1, wherein the step of intergranular etching is carried out with the ~~intergranular etching composition (2).~~

a11 42. (Amended) The process of claim 1, wherein the step of intergranular etching is carried out with the ~~intergranular etching composition (3).~~

a12 49. (Amended) The process of claim 1, wherein the step of intergranular etching is carried out with the ~~intergranular etching composition (4).~~

a13 53. (Amended) The process of claim 1, wherein the step of intergranular etching is carried out with the ~~intergranular etching composition (5).~~

A version of the above amended claims marked to indicate the specific amendments may be found in the attached Appendix, in accordance with 37 CFR 1.121(c)(1).

REMARKS

Claims 1-27 and 32-63 are pending in the present application. Applicants gratefully acknowledge the indication that claim 9 is allowable. Claims 28-31 and 64-83 have been canceled, and claims 1-4, 9, 19, 25, 27, 32, 38, 42, 49 and 53 have been amended. Support for the amendment of claims 1, 9, 32, 38, 42, 49 and 53 is found in the claims as originally filed. Claim 14 has been amended to clarify the silanes which may be used. Claim 19 has been amended to clarify that the step of immersing is carried out on a continuous basis. Claims 25 and 27 are amended in